

What is claimed is:

1 1. A broadcast verification system made up of a
2 broadcasting station, a client entrusting said broadcasting
3 station to broadcast contents including images, and a broadcast
4 verification apparatus to verify whether said contents are
5 broadcast as agreed to by a contract between said broadcasting
6 station and said client, said broadcast verification apparatus
7 comprising:

8 a feature descriptor calculating means to calculate a
9 feature descriptor of said contents that said client entrusted
10 said broadcasting station to broadcast;

11 a storing means to store said feature descriptor of said
12 contents;

13 a comparing means to calculate said feature descriptor of
14 contents detected from broadcasting waves transmitted from said
15 broadcasting station and to compare said feature descriptor
16 obtained by said calculation with said feature descriptor stored
17 in said storing means;

18 a reporting means to report a comparison result obtained
19 by said comparison to said client; and

20 wherein said client checks, by acquiring said comparison
21 result, whether said contents entrusted by said client to be
22 broadcast have been broadcast.

1 2. A broadcast verification system made up of a
2 broadcasting station, a client entrusting said broadcasting
3 station to broadcast contents including images, and a broadcast
4 verification apparatus to verify whether said contents are

5 broadcast as agreed to by a contract between said broadcasting
6 station and said client, said broadcast verification apparatus
7 comprising:

8 an identification number storing means to store an
9 identification number assigned to said contents that said client
10 entrusted said broadcasting station to broadcast,

11 a comparing means to take out said identification number
12 implanted, by using digital watermarking technology making a
13 digital watermark, in contents detected from broadcasting waves
14 broadcast by said broadcasting station and to compare said
15 identification number with said stored identification number;

16 a reporting means to report a comparison result obtained
17 by said comparison to said client; and

18 wherein said client has a watermark implanting section to
19 implant said identification number assigned to said contents that
20 said client wants to broadcast, by using said watermarking
21 implanting technology, and entrusts said broadcasting station to
22 broadcast said contents and checks, by acquiring said comparison
23 result, whether, contents entrusted by said client to be broadcast
24 have been broadcast.

1 3. A broadcast verification system made up of a
2 broadcasting station, a client entrusting said broadcasting
3 station to broadcast contents including images, and a broadcast
4 verification apparatus to verify whether said contents are
5 broadcast as agreed to by a contract between said broadcasting
6 station and said client, said broadcast verification apparatus
7 comprising:

8 an implanting means to assign an identification number to

9 each of said contents transmitted from said client and to implant
10 said identification number in each of said contents by using a
11 digital watermarking technology making a digital watermark and
12 to return it to said client;

13 a storing means to store said identification number that
14 has been implanted in said contents returned back to said client;

15 a comparing means to take out said identification number
16 implanted, using digital watermarking technology, in said
17 contents detected from broadcasting waves broadcast by said
18 broadcasting station and to compare it with said stored
19 identification;

20 a reporting means to report a comparison result obtained
21 through said comparison to said client; and

22 wherein said client entrusts said broadcasting station to
23 broadcast said returned contents and, by acquiring said
24 comparison result, checks whether said contents entrusted by said
25 client to be broadcast have been broadcast.

1 4. A broadcast verification system made up of a
2 broadcasting station, a client entrusting said broadcasting
3 station to broadcast contents including images, and a broadcast
4 verification apparatus to verify whether said contents are
5 broadcast as agreed to by a contract between said broadcasting
6 station and said client, said broadcast verification apparatus
7 comprising:

8 a storing means to store all or a part of said contents that
9 said client entrusted said broadcasting station to broadcast;

10 a comparing means to compare said contents detected from
11 broadcasting waves broadcast by said broadcasting station with

12 all or a part of said stored contents;
13 a reporting means to report a comparison result obtained
14 through said comparison to said client; and
15 wherein said client, by acquiring said comparison result,
16 checks whether said contents entrusted by said client to be
17 broadcast have been broadcast.

1 5. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing means to store feature descriptors of said
7 contents;

8 a registering means to calculate said feature descriptors
9 of said contents transmitted from said client and to register them
10 on said storing means;

11 a detecting means to receive broadcasting waves broadcast
12 by said broadcasting station and to detect said contents;

13 a feature descriptor calculating means to calculate feature
14 descriptors of said detected contents;

15 a comparing means to compare said calculated feature
16 descriptors with those stored in said storing means; and

17 a reporting means to report said comparison result obtained
18 through said comparison to said client.

1 6. The broadcast verification apparatus according to
2 Claim 5, wherein said feature descriptor calculating means
3 generates said feature descriptor by dividing image data of said

4 contents into a plurality of blocks, creating a reduced image
5 using each of said blocks and performing frequency conversion and
6 quantizing processing on said reduced image.

1 7. The broadcast verification apparatus according to
2 Claim 5, wherein said feature descriptor calculating means
3 calculates said feature descriptors in all frames to be received.

1 8. The broadcast verification apparatus according to
2 Claim 5, said feature descriptor calculating means calculates
3 said feature descriptors only in a part of said frames to be
4 received.

1 9. The broadcast verification apparatus according to
2 Claim 5, further comprising:

3 a time information generating means to generate time
4 information obtained when said comparing means detects said
5 contents on which said client wants to perform said broadcast
6 verification from said broadcasting waves;

7 a time information adding means to add said time information
8 to said detected contents; and

9 a storing means to store said contents with said time
10 information added.

1 10. The broadcast verification apparatus according to
2 Claim 5, wherein said contents are made up of not only said images
3 but also voices, said detecting means detects voice data making
4 up said contents contained in said broadcasting waves, said
5 storing means stores voice data making up said contents that said

6 client entrusts said broadcasting station to broadcast and said
7 comparing means compares said detected data with said stored voice
8 data and outputs comparison results.

1 11. The broadcast verification apparatus according to
2 Claim 5, wherein said reporting means obtains said comparison
3 results after having continued aggregation for a specified period
4 of time and transmits said results to said client.

1 12. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing means to store an identification number assigned
7 to each of said contents;

8 a registering means to assign said identification number
9 to said contents on which said client wants to perform said
10 broadcast verification and to issue said identification number
11 to said client and to register it on said storing means;

12 a detecting means to receive broadcasting waves obtained
13 when said contents with the issued identification number
14 implanted, by using a digital watermarking technology making a
15 digital watermark, are broadcast by said broadcasting station and
16 to detect said identification number implanted by said client,
17 using said digital watermarking technology, from said
18 broadcasting waves;

19 a comparing means to compare said detected identification
20 number with said identification number stored in said storing

21 means; and
22 a reporting means to report said comparison result obtained
23 through said comparison to said client.

1 13. The broadcast verification apparatus according to
2 Claim 12, further comprising:
3 a time information generating means to generate time
4 information obtained when said comparing means detects said
5 contents on which said client wants to perform said broadcast
6 verification from said broadcasting waves;
7 a time information adding means to add said time information
8 to said detected contents; and
9 a storing means to store said contents with said time
10 information added.

1 14. The broadcast verification apparatus according to
2 Claim 12, wherein said contents are made up of not only said images
3 but also voices, said detecting means detects voice data making
4 up said contents contained in said broadcasting waves, said
5 storing means stores voice data making up said contents that said
6 client entrusts said broadcasting station to broadcast and said
7 comparing means compares said detected data with said stored voice
8 data and outputs comparison results.

1 15. The broadcast verification apparatus according to
2 Claim 12, wherein said reporting means obtains said comparison
3 results after having continued aggregation for a specified period
4 of time and transmits said results to said client.

1 16. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing means to store an identification number assigned
7 to each of said contents;

8 a registering means to assign said identification number
9 to said contents on which said client wants to perform said
10 broadcast verification and to register said identification number
11 to said storing means;

12 an implanting means to implant said identification number
13 in said contents on which said broadcast verification is to be
14 performed by using digital watermarking technology making a
15 digital watermark and to transmit them to said client;

16 a detecting means to receive broadcasting waves obtained
17 when said contents with said identification implanted are
18 broadcast by said broadcasting station and to detect said
19 identification number implanted in said contents, using said
20 digital watermarking technology, from said broadcasting waves;

21 a comparing means to compare said detected identification
22 number with that stored in said storing means; and

23 a reporting means to report said comparison result obtained
24 through said comparison to said client.

1 17. The broadcast verification apparatus according to
2 Claim 16, further comprising:

3 a time information generating means to generate time
4 information obtained when said comparing means detects said

5 contents on which said client wants to perform said broadcast
6 verification from said broadcasting waves;

7 a time information adding means to add said time information
8 to said detected contents; and

9 a storing means to store said contents with said time
10 information added.

1 18. The broadcast verification apparatus according to
2 Claim 16, wherein said contents are made up of not only said images
3 but also voices, said detecting means detects voice data making
4 up said contents contained in said broadcasting waves, said
5 storing means stores voice data making up said contents that said
6 client entrusts said broadcasting station to broadcast and said
7 comparing means compares said detected data with said stored voice
8 data and outputs comparison results.

1 19. The broadcast verification apparatus according to
2 Claim 16, wherein said reporting means obtains said comparison
3 results after having continued aggregation for a specified period
4 of time and transmits said results to said client.

1 20. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing means to store said contents;

7 a registering means to register all or a part of said
8 contents on which said client wants to perform said broadcast

9 verification;

10 a detecting means to receive broadcasting waves broadcast
11 by said broadcasting station and to detect contents contained in
12 said broadcasting waves;

13 a comparing means to compare said detected contents with
14 all or a part of said contents stored in said storing means; and

15 a reporting means to report said comparison result obtained
16 through said comparison to said client.

1 21. The broadcast verification apparatus according to
2 Claim 20, further comprising:

3 a time information generating means to generate time
4 information obtained when said comparing means detects said
5 contents on which said client wants to perform said broadcast
6 verification from said broadcasting waves;

7 a time information adding means to add said time information
8 to said detected contents; and

9 a storing means to store said contents with said time
10 information added.

1 22. The broadcast verification apparatus according to
2 Claim 20, wherein said contents are made up of not only said images
3 but also voices, said detecting means detects voice data making
4 up said contents contained in said broadcasting waves, said
5 storing means stores voice data making up said contents that said
6 client entrusts said broadcasting station to broadcast and said
7 comparing means compares said detected data with said stored voice
8 data and outputs comparison results.

1 23. The broadcast verification apparatus according to
2 Claim 20, wherein said reporting means obtains said comparison
3 results after having continued aggregation for a specified period
4 of time and transmits said results to said client.

1 24. A broadcast verification method for verifying, for
2 a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;
6 a step of receiving contents from said client;
7 a step of calculating feature descriptors of said received
8 contents;
9 a step of storing said calculated feature descriptors;
10 a step of receiving broadcasting waves broadcast by said
11 broadcasting station and detecting said contents;
12 a step of calculating feature descriptors of said detected
13 contents;
14 a step of comparing said calculated feature descriptors
15 with said stored calculated feature descriptors; and
16 a step of transmitting a result obtained by said comparison
17 to said client.

1 25. A broadcast verification method for verifying, for
2 a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;
6 a step of assigning an identification number to each of said

7 contents on which said client wants to perform said broadcast
8 verification;

9 a step of issuing said identification number to clients and
10 storing identification numbers;

11 a step of receiving broadcasting waves obtained when said
12 broadcasting stations broadcast contents in which said
13 identification number has been implanted by said client by using
14 digital watermarking technology making a digital watermark and
15 of detecting contents from said broadcasting waves;

16 a step of judging whether said watermark exists in said
17 detected contents;

18 a step of detecting, if said watermark exists, said
19 identification number implanted, using said digital watermarking
20 technology, in said detected contents;

21 a step of comparing said detected identification number
22 with said stored identification number; and

23 a step of transmitting a result obtained through said
24 comparison to said client.

1 26. A broadcast verification method for verifying, for
2 a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a step of receiving contents on which said client wants to
7 perform said broadcast verification;

8 a step of assigning an identification number to each of said
9 received contents and storing said identification number;

10 a step of implanting said identification number in said

11 contents on which said broadcast verification has to be performed,
12 using digital watermarking technology making a digital watermark;
13 a step of returning said contents with said identification
14 number implanted to said client;

15 a step of receiving broadcasting waves obtained when said
16 broadcasting station broadcasts said contents with said
17 identification number implanted and detecting said contents from
18 said broadcasting station;

19 a step of judging whether said watermark exists in said
20 detected contents;

21 a step of detecting, if said watermark exists, said
22 identification number implanted, using said digital watermarking
23 technology, in said detected contents;

24 a step of comparing said detected identification number
25 with said stored identification number; and

26 a step of transmitting a result obtained through said
27 comparison to said client.

1 27. A broadcast verification method for verifying, for
2 a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a step of receiving contents from said client;

7 a step of storing all or a part of said received contents;

8 a step of receiving broadcasting waves broadcast by said
9 broadcasting station and detecting contents;

10 a step of comparing said detected contents with all or a
11 part of said stored contents; and

12 a step of transmitting a result obtained through said
13 comparison to said client.

1 28. A computer-readable storage medium storing a
2 broadcast verification program for causing a computer to execute
3 a broadcast verification method for verifying, for a client which
4 entrusts a broadcasting station to broadcast contents containing
5 images, whether said contents have been broadcast as agreed to
6 by a contract between said broadcasting station and said client,
7 said broadcast verification method comprising;
8 a step of receiving contents from said client;
9 a step of calculating feature descriptors of said received
10 contents;
11 a step of storing said calculated feature descriptors;
12 a step of receiving broadcasting waves broadcast by said
13 broadcasting station and detecting said contents;
14 a step of calculating feature descriptors of said detected
15 contents;
16 a step of comparing said calculated feature descriptors
17 with said stored calculated feature descriptors; and
18 a step of transmitting a result obtained by said comparison
19 to said client.

1 29. A computer-readable storage medium storing a
2 broadcast verification program for causing a computer to execute
3 a broadcast verification method for verifying, for a client which
4 entrusts a broadcasting station to broadcast contents containing
5 images, whether said contents have been broadcast as agreed to
6 by a contract between said broadcasting station and said client,

7 said broadcast verification method comprising;
8 a step of assigning an identification number to each of said
9 contents on which said client wants to perform said broadcast
10 verification;
11 a step of issuing said identification number to clients and
12 storing identification numbers;
13 a step of receiving broadcasting waves obtained when said
14 broadcasting stations broadcast contents in which said
15 identification number has been implanted by said client by using
16 digital watermarking technology making a digital watermark and
17 of detecting contents from said broadcasting waves;
18 a step of judging whether said watermark exists in said
19 detected contents;
20 a step of detecting, if said watermark exists, said
21 identification number implanted, using said digital watermarking
22 technology, in said detected contents;
23 a step of comparing said detected identification number
24 with said stored identification number; and
25 a step of transmitting a result obtained through said
26 comparison to said client.

1 30. A computer-readable storage medium storing a
2 broadcast verification program for causing a computer to execute
3 a broadcast verification method for verifying, for a client which
4 entrusts a broadcasting station to broadcast contents containing
5 images, whether said contents have been broadcast as agreed to
6 by a contract between said broadcasting station and said client,
7 said broadcast verification method comprising;
8 a step of receiving contents on which said client wants to

9 perform said broadcast verification;
10 a step of assigning an identification number to each of said
11 received contents and storing said identification number;
12 a step of implanting said identification number in said
13 contents on which said broadcast verification has to be performed,
14 using digital watermarking technology making a digital watermark;
15 a step of returning said contents with said identification
16 number implanted to said client;
17 a step of receiving broadcasting waves obtained when said
18 broadcasting station broadcasts said contents with said
19 identification number implanted and detecting said contents from
20 said broadcasting station;
21 a step of judging whether said watermark exists in said
22 detected contents;
23 a step of detecting, if said watermark exists, said
24 identification number implanted, using said digital watermarking
25 technology, in said detected contents;
26 a step of comparing said detected identification number
27 with said stored identification number; and
28 a step of transmitting a result obtained through said
29 comparison to said client.

1 31. A computer-readable storage medium storing a
2 broadcast verification program for causing a computer to execute
3 a broadcast verification method for verifying, for a client which
4 entrusts a broadcasting station to broadcast contents containing
5 images, whether said contents have been broadcast as agreed to
6 by a contract between said broadcasting station and said client,
7 said broadcast verification method comprising;

8 a step of receiving contents from said client;
9 a step of storing all or a part of said received contents;
10 a step of receiving broadcasting waves broadcast by said
11 broadcasting station and detecting contents;
12 a step of comparing said detected contents with all or a
13 part of said stored contents; and
14 a step of transmitting a result obtained through said
15 comparison to said client.

1 32. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;
6 a storing section to store feature descriptors of said
7 contents;
8 a registering section to calculate said feature descriptors
9 of said contents transmitted from said client and to register them
10 on said storing section;
11 a detecting section to receive broadcasting waves broadcast
12 by said broadcasting station and to detect said contents;
13 a feature descriptor calculating section to calculate
14 feature descriptors of said detected contents;
15 a comparing section to compare said calculated feature
16 descriptors with those stored in said storing section; and
17 a reporting section to report said comparison result
18 obtained through said comparison to said client.

1 33. A broadcast verification apparatus for verifying,

2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing section to store an identification number
7 assigned to each of said contents;

8 a registering section to assign said identification number
9 to said contents on which said client wants to perform said
10 broadcast verification and to issue said identification number
11 to said client and to register it on said storing section;

12 a detecting section to receive broadcasting waves obtained
13 when said contents with the issued identification number
14 implanted, by using a digital watermarking technology making a
15 digital watermark, are broadcast by said broadcasting station and
16 to detect said identification number implanted by said client,
17 using said digital watermarking technology, from said
18 broadcasting waves;

19 a comparing section to compare said detected identification
20 number with said identification number stored in said storing
21 section; and

22 a reporting section to report said comparison result
23 obtained through said comparison to said client.

1 34. A broadcast verification apparatus for verifying,
2 for a client which entrusts a broadcasting station to broadcast
3 contents containing images, whether said contents have been
4 broadcast as agreed to by a contract between said broadcasting
5 station and said client, comprising;

6 a storing section to store said contents;

7 a registering section to register all or a part of said
8 contents on which said client wants to perform said broadcast
9 verification;

10 a detecting section to receive broadcasting waves broadcast
11 by said broadcasting station and to detect contents contained in
12 said broadcasting waves;

13 a comparing section to compare said detected contents with
14 all or a part of said contents stored in said storing section;
15 and

16 a reporting section to report said comparison result
17 obtained through said comparison to said client.